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PRACTICAL SCIENCE, INDUSTRIAL ART AND PUBLIC HEALTH.

Few subjects appear or deserve to attract more universal attention at present than the right adjustment of the claims of Practical Science in an extended system of public instruction, and its relations to public and individual health, to the wants of daily life, and the progress of the industrial arts. The Continental Governments, and especially those of France and Germany have long since established Special Schools of Science, under the names of Institutes or Schools of Art, Polytechnic Schools, Industrial and Technological Schools, Schools of Agriculture, Mining, Architecture, Engineering, Trades, Commerce, Navigation, &c. &c. In Germany alone, according to an article in Barnard's *American Journal of Education* for 1856, there were two hundred and twenty-six schools of this class. In the recently established school system of the kingdom of Sardinia, Technical Courses, extending through five years, are specially provided for in connection with all the National Colleges, in addition to Special schools, such as the Royal Technical Institute, embracing seven classes and twenty professors, at Turin; a School of Commerce and Navigation at Nice; a School of Agriculture at Savoy; a School of Arts and Trades in Biella, and one of the same general character but adapted to the local industrial habits of the people, in every large town. The English Government, since the Great Industrial Exhibiton of 1851 showed the superiority in artistic design and finish of French and German workmanship, has established a Department of Science and Art, and appropriated in 1858 over $400,000 to its various operations, such as the Government School of Mining and Museum of Practical Geology in Lon-

don, the Museum of Irish Industry, Industrial Museum of Scotland, Central and Local Schools of Art to the number in all of sixty-eight including in 1857 nearly thirteen thousand pupils, a Central Training School for Teachers (both male and female) in Art, Collections illustrating Construction and Building Materials, Drawings, Casts ,&c. &c., including a systematic plan for introducing Drawing into all the Elementary Schools of England, Scotland and Ireland.

Dr. Barnard, in his Inaugural Address as Chancellor of the State University, urged the universal instruction in Art and the Sciences, and their applications to health and industry, as a cardinal object in the educational policy of the State, from the District School to the University—not to the exclusion of languages, and mathematics, but on a footing of equality both as a means of mental training, and for their manifold and constant uses in life. The plan briefly shadowed forth in that Address, embraced (1) the introduction of Drawing and Physiology in every public school of every grade; (2) a study, so far at least as universal observation and oral instruction, in every school, of the peculiarities of soil, minerals, animals, and occupations in every town; (3) a preparation in all Public High Schools, Academies and Colleges aided by the State, and especially in all Normal Classes, for a thorough scientific course in the State University, or in a Special Polytechnic School; (4) the establishment of a Museum of Practical Science in connection with the Scientific Department of the University, or State Polytechnic School, or State Society of Arts and Manufactures; and (5) Local Museums of the Fine and Industrial Arts, with annual courses of Lectures, Illustrations and Practical Operations for the youth and adult population generally in all the principal towns. His Circular (published in our last number) to the People of Madison in reference to an Institute or Cosmos, to be erected after plans by Dr. D. B. Reid, is in furtherance of his views on this last point, while the following correspondence between him and Dr. D. B. Reid shows the present position of this movement in the University. Before introducing the letters we will speak briefly of Dr. Reid's antecedents to his appointment to a professorship in the University on Dr. Barnard's nomination.

Dr. Reid came to this country in 1855 with letters of introduction from Mr. Buchanan, then our Minister to the Court of St. James, to President Pierce, and a well established European reputation, first achieved as a practical chemist in his experimental and lecture rooms at Edinburgh, where he had upwards of three thousand professional pupils between the years of 1827 and 1840, and by his numerous publications on chemistry and public health, of which the following may be named:

"ELEMENTS OF CHEMISTRY, Theoretical and Practical. Third Edition "in 906 pages 8vo with Woodcuts and Diagrams. Edinburgh. Price 18s.

"RUDIMENRS OF CHEMISTRY, with Illustrations of the Chemical Phe-
"nomena of Daily Life." This manual had a circulation of upwards of 30,000 copies, in connection with Chamber's Educational Course.

"A TEXT BOOK for Students of Chemistry. Edinburgh. Third Edi-
"tion 192 pages 8vo. Diagrams.

"THE STUDY OF CHEMISTRY *considered as a branch of Elementary*
"*Education*, with a short statement as to the Lectures on the Chemistry
"of Daily Life given at Exeter Hall under the sanction of the Committee
"of the Privy Council on Education, to a Thousand Metropolitan
"Teachers. Second Edition. London: Longman & Co.

"ILLUSTRATIONS OF THE THEORY AND PRACTICE OF VENTILATION,
"with Remarks on Warming, Lighting and the Communication of
"Sound, and 320 Engravings on Wood. London: Longman & Co.
"Price 16s. * *

"REPORTS AS A MEMBER OF THE GOVERNMENT COMMISSIONERS ON THE
"HEALTH OF TOWNS, from 1843 to 1845, and a Special Report on the
"Northern Mining District."

The construction of his class room at Edinburgh and the peculiarities of its provisions for warming, lighting and ventilating, led a Committee of the House of Commons to recommend the Government to recast the internal arrangements of the Chamber then occupied, for the purpose of enabling all the members to test the accuracy of his views, and the necessity of their introduction in the New Houses of Parliament, which it had been determined to erect. The success of Dr. Reid's plans was testified publicly by the Government, by a Committee of the House, and by repeated declarations of its most eminent members, including the Speaker of the day, and the present Lord Chancellor. Lord Sudeley, the Chairman of the Commissioners for selecting the Design for the New Houses of Parliament stated—"To Dr. Reid we owe the solution of the problem, that, by a proper system, ventilation may be obtained in the most trying and difficult circumstances." He also said: "The ventilation of the House of Commons was complete and perfect, and the first plan of systematic ventilation ever carried out in this or any other country."

Dr. Reid's researches on ventilation and acoustics were conducted principally at his class room at Edinburgh, and at an experimental laboratory provided for him by the British Government at the Houses of Parliament in London. To these his system of instruction, investigation and illustrations not only attracted numerous pupils, but also a perpetual succession of visitors including such men as Earl Grey, the Premier of the Great Reform Ministry, Dr. Chalmers, Lord Brougham, Geo. Combe, the Presidents of the Royal Societies of London and Edinburgh, Liebig, and numerous professional men both from the old and the new world, among

whom we may mention the late eminent Horace Mann who, in his educational tour in Europe, describes the House of Commons which Dr. Reid had ventilated as the only edifice he saw in Europe in which a complete system was established that gave the members every luxury and comfort that ventilation could afford.

On removing to London at the request of the Government (Lord Melbourne's) Dr. Reid not only directed the ventilation of the Old and New Houses of Parliament, but executed numerous public works under different Government and other Boards, and entered on large and extended plans for the improvement of public health in England, particularly in the metropolis, having been appointed a member of the Health of Towns Commission where he had the opportunity of co-operating with members of both Houses of Parliament, and with the most eminent engineers, geologists, agriculturists and medical men of the day. Of the labors of this Commission, a distinguished American author, Dr. Elisha Harris, physician in chief at Quarantine, in the city of New York, has recorded his opinion in the following words: "The most important effort ever undertaken in any country for general sanitary improvement and reform was the Health of Towns Commission, which was organized by the reigning Queen in 1843. The Board of Commissioners was composed of thirteen distinguished scientific and philanthropic gentlemen. The stupendous results of their labors and investigations may be judged of by their final reports which are comprised in three huge folios, every page of which is full of most instructive facts. Probably no other attempt at sanitary reform has produced results at all comparable with this."

At a subsequent period, dissatisfied with the proceedings of the architect in the application of his plans at the New Houses of Parliament, he called the attention of the Government to unauthorized alterations, and to a system of action on the works which he contended would not give his views the same fair play they had received in the old buildings. A Committee of the House of Commons examined the case, and unanimously sustained Dr. Reid, laying down rules at the same time for the right application of his plans. But the House of Peers on the motion of the Marquis of Clanricarde would not agree to them, and from that moment Dr. Reid refused to act at the Houses of Parliament except under protest, constantly pointing out the injurious consequences that would flow from the change of policy and practice on the works, and vindicating his views at an arbitration when the arbiters awarded him a pecuniary compensation. The continued increase in the pollution of the Thames and its influence on the meetings of Parliament have at last rendered manifest to all men some of the evils Dr. Reid had previously pointed out, and justified the precautions which he foresaw would be necessary to avert and control them.

Dr. Reid was consulted by the Government both at Paris and St. Petersburgh, and has executed many public works in different parts of Great Britain. The last public work in which his plans were applied was the Russian frigate, *The Grand Admiral*, which was built recently in New York, and sailed last summer to Cherbourgh. At St. George's Hall, in Liverpool, the municipal authorities sustained him for fourteen successive years in applying, during the construction of this great building, similar plans to those he introduced at the New Houses of Parliament. One architect alone, in Edinburgh, Thomas Brown, Esq., has applied his plans in forty eight public and private buildings.

In coming to this country it is understood that Dr. Reid entertains the conviction that in the new American States the government and the people have very special opportunities for carrying out an improved and extended system of education in science, adapted to the present condition of society, and its more practical application to the wants of man. He contends, also that neither the University nor the State generally can reap the full benefit of such a system, unless conjoined with the more systematic introduction of the elements of science in elementary schools, and the foundation of popular institutions to assist the adult population in becoming better acquainted with the progress of the day, and with those departments in which they are more immediately interested in their varied avocations. He advocates more especially the introduction of an extended system of actual practice among the students of Universities, and the formation of a select Museum of instruments, machines, drawings, and working models, that shall be daily accessible to them, and give them proper opportunities of becoming familiar with their construction, and their right and useful application to the wants of daily life. With such resources, and the cooperation of men of position, influence, and education, in the city and throughout the State, it is presumed that in two or three years there are few to whose homes the development of science and sanitary improvements would not carry important results, affecting equally the comfort and economy of their habitations, the improvement of arts and manufactures, and the well being of cities and populous districts.

It is not anticipated that such results can flow from any imperfect measures. Means are required to carry them into execution as well as the most deliberate consideration. And we trust that so long as they are maintained within reasonable limits, the right development of the material interests of the whole State, and the improvement of its cities, villages and individual habitations will not want that educational support which the progress of science can bestow. How many of the obstacles that obstructed the progress of the merchant, the manufacturer, the med-

ical man, the architect, the engineer and the agriculturist, have been removed by science? It is difficult to estimate the advantages that may arise from its proper introduction among all classes of the population. What State will be the first fully to realize this great object in improving the condition of mankind?

LETTER FROM CHANCELLOR BARNARD TO PROF. D. B. REID.

UNIVERSITY, MADISON, Oct. 20, 1859.

DEAR SIR—It is very important to a thorough reorganization of the Department of Practical Science in the University, that we have before us as a Faculty, and that I have clearly in my own mind in reference to a Communication which I contemplate making to the Regents at their next annual meeting—a statement in detail of the subjects which can be profitably embraced in your lectures and instructions in Physiology and Hygiene; and what fixtures, apparatus, materials, models, and diagrams are necessary to the proper development of your course in connection with the Museum of Practical Science. My desire is to open this latter course in our next winter term, in its elementary bearings, with a Special Normal Class, and also with a Special Course of Popular and Scientific Lectures on Agriculture and Horticulture, intended to interest adults, as well as instruct regular students.

In making your statement of what should be done and purchased, you will have reference to the depressed condition of our finances, and to the beginning of a new department of study, with the practical bearings of which on the health and industry of the people, the public mind is not fully informed, but which will in it progress commend itself more and more to the liberal appreciation of all classes. I would particularly request that you include many subjects of practical value to teachers, for we must bring to their observation, and knowledge, and practice, every thing which we wish to have introduced into the schools of the people.

Your obedient Serv't,

HENRY BARNARD.

TO PROF. D. B. REID.

LETTER FROM DR. REID TO CHANCELLOR BARNARD.

UNIVERSITY, Madison, 26th Nov. 1859.

MY DEAR SIR:—Having received the drawings that give the dimensions of the varied apartments in University Hall, and the position of the different flues, I take the earliest opportunity of replying to your note of the 20th ult., in which I am instructed to give a statement in de-

tail of the subjects that can be embraced most profitably in my department, and of the fixtures, materials, models, diagrams, and apparatus necessary for the proper development of my course.

It appears to me that the two following papers embrace the replies you require; and, in submitting them, I have been guided, under the financial circumstances you specified, more by the conviction of what is essential for the present wants of the institution, and capable of immediate developement, than by a desire to present the most complete and systematic exposition of the courses that may be finally most suitable to the progress of the University.

These must depend upon the annual support accorded, the number of pupils, and the interest they may take in the varied departments, as well as the time they can devote to them. But next to the course of lectures and instructions embraced in No. 1, I am deeply impressed with the belief that the formation of a Select Museum of Art and Science, daily accessible to the students, under proper regulations, and the introduction of practical Laboratories, and other means mentioned in No. 2, would greatly promote the general progress of the University, facilitate the development of arts and manufactures, and teach some of the most important practical lessons that youth can receive in observation, designing and experimenting, which form, in conjunction, the great basis of all inventions and discoveries in physical science.

Society has never hitherto had the advantage of the united cooperation of professional men in the varied departments that are bound together by the *commune vinculum scientiarum*, and that can be intertwined at the same time with a course of instruction based on the structure of the human frame, and the material, as well as the moral, intellectual and social wants of life. And if, in carrying out a portion of the important views which you have so strongly advocated, this State shall be the first to realize, in its full extent, the results which may be anticipated by rendering practical science more universally available to a whole population than it has ever been at any former period of the history of man, it is only just and reasonable to anticipate an increase in comfort, recources and occupations that must be equally interesting in the economy of individual habitations, and productive of improvement throughout the whole community.

As to the sum required for the completion of the arrangements contemplated, it is presumed that it would be most satisfactory to fit up, at first, a few rooms on the principal floor, and others in the floor below, expending from two to three thousand dollars for apparatus, exclusive of architectural arrangements not yet completed, or for the improvement of the light, and to be guided in all future proceedings by the progress of the

University, and the interest taken in the Museum. I trust this arrangement will meet the present position of the financial question to which you have adverted, and admit of an immediate selection of such models, apparatus and drawings to be made, as will meet at once the most urgent wants of the institution.

Your very obedient servant,

D. B. REID.

The Hon. HENRY BARNARD,

Chancellor University of Wisconsin.

The course embraced in Dr. D. B. Reid's department at the University of Wisconsin includes Physiology and Hygiene, with special instruction in select departments of Chemistry. A Museum of Practical Science is also to be organized under his direction.

NO. 1.—SYLLABUS OF COURSE ON PHYSIOLOGY AND PUBLIC HEALTH.

The following outline comprises a general view of the Lectures and Instructions that are at present in progress in the department of Physiology and Hygiene:

The Relation of the Human Frame to the External World. The Leading Phenomena of Life and Death. The Materials of which the Body is composed. Organic and Inorganic Matter. Influence of Heat, Light, Electricity and Magnetism.

The various Tissues in the Living Frame, and their special Functions.

Mutual relations of Mind and Matter. The Soul and the Body.

The Nature of the Blood. The Circulation of the Blood. The Heart, the Arteries and the Veins. The Chest and the Lungs. Theory of Respiration. Oxidation of the Blood.

The effect of Imperfect Aeration of the Blood. Nature and importance of Ventilation. Natural and Artificial Ventilation. Cases in which Artificial Power is required. Influence of Temperature. Natural and Artificial Climates. The Warming of Air. Open Fires. Stoves. Hot Water Apparatus. Steam Heating Apparatus. Economy of Fuel. The Cooling of Air.

Influence of Artificial Lighting on Ventilation. Exclusive Lighting. Position of Internal Lights. Ventilated Lamps.

Ventilation of Individual Rooms, Huts and Cottages, Houses in Town and in the Country. Public Buildings, including Churches, Schools, Courts of Law, Assembly Rooms, Prisons, and Hospitals. Railway Cars. Steamboats and other Ships. Manufactories: Mines Buildings in Warm, Cold, and Temperate Climates. Chancellor Barnard's School Architecture.

Origin of Bad Air in External Atmospheres. Malaria from Land and Water. Resources available for the improvement of External Atmospheres.

The Function of Digestion.

The Food of Man. Vegetable and Animal Diet. Carbo-hydrates. Hydro-carbons and Nitrogenized Food.

The Alimentary Canal. The Mouth. The Teeth. The Tongue. The Salivary, Parotid and Sub lingual Glands. The Pharynx. The Œsophagus. The Stomach and the Intestines. The Gastric Juice. The Liver and the Bile. The Pancreas. The Spleen. The Lacteals and the Thoracic Duct.

Nutrition. Growth and Decay. Secretion and Excretion. The Lymphatic System. The Kidney.

The Skin and its Functions. Absorption. Exhalation. Transudation. Clothing.

The Bones and Ligaments.

The Muscles.

Serous and Mucous Membranes.

Adipose and Cellular Tissue.

The Nervous System. The Cerebrum. The Cerebellum. The General Functions of the Brain and of Individual Nerves. The Ganglionic System. The Sensorium Commune. Sensation and Motion. Thought and Action. Sleep.

The Eye.

The Ear. The Musical Ear.

The Nostrils.

The Tongue. The Larynx. The Voice.

The Acoustic Construction of Public Buildings.

Reproduction and Development of Life.

The Causes of Death.

The General Origin and Prevention of Disease. External and Internal Causes. Food and Exercise. The Condition of the Blood, the Skin and the Alimentary Canal. Epidemics. Endemics. Fevers. Eruptions. Cholera. Small Pox. Inflammations. Scrofula. Consumption.

Different Races of Men. Causes of Degeneracy and Improvement. Influence of Food, Climate, Mental and Physical Labor, Occupations and Recreations. The Power of Habit and Training.

Temperance and Dissipation.

The Varied Temperaments in Different Men.

Individual Health.

The Duration of Life.

Public Hygiene. Principles on which it is Founded. Laws to Enforce their Application.

Influence of National Customs on Public Health.

The Selection of Sites for Cities.

Individual Habitations. Crowded Lodging Houses.

The Construction and Disposition of Streets, Squares, and Public Edifices. Facilities given by Modern Construction.

The Prevention of Accidents by Fires.

The Supply of Water. The preservation of the purity of water.

Gas Works. Heating and Lighting by Gas.

Cleansing and Drainage.

Baths and Wash Houses.

Markets. Supply and Inspection of Food. Poisons and Adulterations.

Public Parks, and Gardens for Instruction and Recreation. Play-ground and Gymnastic Arrangements for Schools.

Public and Private Cemeteries. The Burial of the Dead.

Arts and Manufactures. Circumstances under which the Public Health Requires Protection.

Influence of the General Progress of Architecture on Public Health. The Useful and the Beautiful. Influence of Education in Science on the Public Health.

N. B. *Some other subjects are contemplated in this course, but they are dependent on the provisions that may be made for this purpose in the University Hall.*

NO. 2.—THE MUSEUM OF PRACTICAL SCIENCE, AND THE EXPERIMENTAL AND MODELLING ROOMS PROPOSED IN CONNECTION WITH IT.

"A."

This museum is intended to be daily accessible to the students, and to contain a series of Specimens, Models and Drawings illustrative of the more important facts connected with the History of Art, and of the materials of which the globe is composed.

In connection with Experimental Laboratories, and an Engineer's Work-shop, it will facilitate the instructions given in the different departments of Science, and prove a valuable adjunct to the Library by the opportunities of reference which it will present, while the working models will give an explanation of movements and machinery which no written or printed documents can so advantageously unfold.

Such a museum must ever be in progress in connection with the inventions and discoveries of the day. The following are recommended as the first objects to be placed within its walls;

A Terrestrial Globe. A Celestial Globe. Charts illustrative of the leading features of the Geography. Geology, and Hydrography of the Globe. Charts of Winds, Clouds, and other Meteorological Phenomena.

A small Case containing Specimens of the Chemical Elements. These and their combinations form every thing known to man in this globe.

1000 Specimens of Rocks, Soils and Minerals.

A special Case with Specimens of Building Materials.

1000 Specimens of Products from the Animal and Vegetable Kingdoms.

1000 Specimens of Artificial Chemical and Mechanical Products, and of the changes to which different materials are subjected in manufacturing operations.

An Articulated Skeleton. Select Models and Drawings of the Human Frame. The Dynamometer.

A complete series of Drawings of a Hut, a House, and a Public Building, with special expositions of structure, of the mode of heating, lighting and ventilating, and of the precautions necessary where there is danger from Fire or Spontaneous Combustion.

Drawings and Models illustrative of Water works. Drainage and other objects connected with public health, and of the principal peculiarities of Cities and Villages, distinguished by the perfection of the arrangements introduced in them.

Plans, Sections, and Views of Public Buildings in different parts of the globe.

Models and Drawings of Instruments and Machines, and of Mechanical Arts and Manufactures The following to be included in the first series of selections:

Elementary Illustrations of the application of Mechanical Power.

Agricultural Implements.

Spinning, Weaving, and Rope Making.

Calico Printing, Dyeing and Bleaching.

Manufacture of Iron and other Metals.

Glass, Pottery and Porcelain.

Models and Sections of the Steam Engine and of the Caloric Engine. The Water Wheel and the Hydraulic Pump. The Wind Mill.

Specimens of Printing Types and Forms. Lithographic Plates. Engraved Copper Plates, Zinc Plates, and Wood-Cuts. Photographic Plates. Printing Press. Illustrations of Electrotyping and Stereotyping.

Models and other Illustrations of the Manufacture of Paper.

Casts in Plaster of Paris, Sulphur, and Gutta Percha.

Specimens of Oil Painting, and of the different styles of drawing.

Electric Telegraph apparatus.

Miscellaneous Optical, Pneumatic, Acoustic and other apparatus.

"B."

A special apartment is recommended to be appropriated to the use of the BALANCE, and to the apparatus mentioned in the following list:

Weights and Measures.

Specific Gravity Apparatus.

Time-pieces, or Clocks under glass cases, accompanied by Drawings naming all the varied parts of which they are composed.

Barometers.

Thermometers.

Hygrometers.

Anemometers.

Electrometers.

A Dividing Machine. A Micrometer. A Telescope.

Special provisions are also recommended for enabling the students to become practically familiar with the use of the Blowpipe and the manufacture of Tube apparatus and for Photographic apparatus and the application of the Microscope in different departments of Art and Science.

"C."

It is proposed to devote an apartment on the ground floor to a BOILER ROOM AND ENGINEERING WORKSHOP, and to provide it with the following arrangements:

A Boiler.

A Steam Engine.

Shafting.
Drilling Apparatus.
A Turning Lathe.
A Planing Machine.
A Steam Hammer.

Tables for Smith Work and Model Making.
In Iron, Brass, and other metals.
— Stone, and Glass.
— Clay, Wax, and Gutta Percha.
— Plaster of Paris.

A carpenter's work shop should also be instituted in connection with the arrangements specified, and precautions taken for the daily removal before sunset of all waste from the materials in use.

"D."

Another apartment on the ground floor is considered equally important as a FURNACE AND GENERAL EXPERIMENTAL LABORATORY. It should include the following furnaces, &c.:

An Open Fire for Miscellaneous Operations.

A Crucible Furnace.

A Ventillated Sand Bath.

A Circular Furnace.

A Blast Furnace.

A Cupellation Furnace.

Space for Temporary Furnaces to be built by Students.

A Central Table with Descending Flue.

A Caloric Engine and Pumping and Blowing Apparatus.

100 linear feet of Experimental Tables at least two feet broad.

An External Space arranged for Special Furnace Operations, carried on temporarily without the building.

Furnaces for Glass and Porcelain, and Baking Oven in an adjoining room.

A Table, Troughs and other arrangements provided for cleaning chemical apparatus.

A Forge, an Anvil, a Vice and other appropriate tools should be provided in a contiguous apartment.

"E."

EXPERIMENTAL AND FOREST GARDEN.

An Experimental Garden devoted to the cultivation of plants in select natural and artificial soils, and with every variety of manure is recommended as soon as arrangements for this purpose can be instituted, including specimens of Forest Trees and Foreign Plants that can be introduced with advantage in this country, and a Green House, and a small Hot House, even if not larger than a shed about twenty feet square.

These arrangements are recommended in addition to the ordinary provisions made for professional courses in different departments of Science, but it is presumed that if the recommendations be carried into execution the Professors in using the Museum, and the apparatus it may contain, shall also place in it any of their models, apparatus and drawings that may be serviceable there and not required frequently or continuously in their respective class rooms, so as to render the use of duplicates in a great measure unnecessary.

In the selection of specimens, the great object being to facilitate the daily studies of those in every department of practical science, particularly in *Agriculture*, *Architecture*, *Mining*, *Engineering*, and in the development of *Special Arts*, *Manufactures* and *Industrial Occupations*, it is considered important that all specimens in this Museum should be as small as may be consistent with the proper exhibition of their character and action, and that the State Cabinet and any Botanic Garden that may hereafter be instituted be resorted to for all those more extensive specimens that the more advanced student and the public may desire to examine in detail.

TEACHERS' INSTITUTES.

RICHLAND CENTER.

The Institute at this place was held at the same time that the Richland County Teachers' Association held their meeting. The exercises were, therefore, of a varied and interesting character. During the session, addresses were delivered upon the following subjects:

By Prof. John Ogden, of Ohio, upon "Educational Wants and Educational supplies;" by S. H. Carpenter, Assistant State Superintendent, upon "Moral Education;" and by Chancellor Barnard, Agent of the Regents of Normal Schools, upon "The importance and advantages of Graded Schools."

The following subjects were presented in the form of essays: "Selecting Teachers and modes of teaching," by A. C. Eastland; "Government of Schools," by J. S. Wilson; "Best method of teaching Music," by Miss J. S. Holmes; "Physiology," by E. C. Hungerford; "A Teacher as he should be," by Mrs. J. S. Wilson.

Discussions were held upon the "Best method to dispense with or control Whispering," and the general subject of "Corporal Punishment." These discussions were participated in by many of the teachers and others.

The regular daily exercises of the Institute embraced exercises and instruction upon the following subjects; Elocution, conducted by Rev. J. D. Todd; Intellectual Arithmetic, conducted by H. W. Glasier; Best method of teaching Higher Mathematics, by Prof. John Silsbee; Theory and Practice of Teaching, in its various branches, and Written Arithmetic, by Prof. Ogden; Reading, Spelling, Arithmetic, and Composition, by Prof. C. H. Allen.

The exercises were enlivened by music by Miss J. S. Holmes, Messrs. Gutterson and Allen, and by the Richland Sax Horn Band.

Resolutions were adopted during the session, touching the following points:—

Thanking the citizens of Richland Center for their hospitality and kindness; the lecturers, essayists, and conductors of the Institute for their labors, and the musicians for their melody.

Recommending the continuance of Teachers' Institutes as educational agencies; the use of the Bible and vocal music in our schools.

Censuring the use of tobacco and profane swearing on the part of teachers.

About sixty teachers were in attendance, and the exercises wound up with a "sociable," which left the best of feeling.

RIVER FALLS.

The Institute in this place was opened on Monday evening, Oct. 24, by addresses from F. A. Allen, Wilcox, and A. H. Weld. A large audience was in attendance, who were well pleased with the sound practical matter presented.

During the week the following subjects were presented: By Prof. Allen, of Penn., Mental and Written Arithmetic, the latter in reference to the best method of teaching Square and Cube Root, Alligation, etc.; Geography, Orthography, the "word method" of teaching Reading, Writing, Physiology, Composition, and Punctuation.

By Prof. Wilcox, Principal of River Falls Academy,—Waking up the mind, Necessity and manner of proving the Ground Rules of Arithmetic, Mathematical Geography, as connected with the motions of the earth, zones, latitude and longitude, etc.

By Prof. A. H. Weld, author of Weld's English Grammar,—Grammar in the several divisions of analysis, synthesis, and the best methods of teaching this branch of study.

By Prof. Bartlett, of Hudson,—an exercise in Reading.

The evenings were devoted to lectures upon the following subjects of general interest: The educational system of Wisconsin; Early home education; School Government; Object Lessons, or learning from the Book of Nature; The true position of the Teacher, and the difference between Educating and Teaching.

About seventy names were enrolled, the most of whom were practical teachers.

The following extract from the River Falls Journal is indicative of the manner in which the Institute passed off, in the estimation of the teachers and public generally:

"This Convention, which has long been anticipated with unusual interest by the *live* teachers of the St. Croix valley, was in session during the past week in this village. It is, we believe, the first Institute ever held in this section under the auspices of the State; and we are happy to announce its complete success. We are sure that no one could have been present during its various exercises without feeling a conviction of the utility of Teachers' Institutes; and of their absolute necessity, in order to give to our common schools, and to higher institutions, also, such teachers as the educational policy of our State contemplates.

"If Chancellor Barnard was the originator of these Institutes in this country, as we believe he was, he stands second to no one on the continent in his claims to our regard as a public benefactor—at least, in the line of his labors. We certainly feel a respect for his sagacity, since he cannot personally supervise all these Institutes, in selecting such a man to conduct them as was sent here—Prof. F. A. Allen. The Prof. worked here like a hero, and has left his mark on more minds here than those of

his pupils, and has won for himself golden opinions of his power as a genuine educator.

"We should be glad to devote three or four columns of our paper in recording more minutely the substance of the various lectures, and the proceedings and discussions at the Institute; but we have time only to give a condensed abstract.

"The audience was favored in the evenings with fine interludes of music, by the church choir, under their efficient leader, Prof. G. W. Pratt. The selections were in fine taste, and admirably sung.

"In conclusion, we believe no thinking person could have attended the Institute without a conviction of its utility to teachers, and also in rousing the public mind to a better appreciation of the importance of having our common schools made more efficient.

"If there should ever be another Institute in this section, as there doubtless will be, we hope that not only teachers and those who propose to become such, will attend, but that all our citizens who have the public weal at heart, will come in and be aroused, instructed and rejuvenated."

KENOSHA.

Pursuant to the call of Chancellor Barnard, the teachers of Kenosha county met in the city of Kenosha on Monday evening, Nov. 7th, to hold an Institute during the week. Nearly one hundred members were in attendance.

The exercises were opened by an interesting address by Prof. John Ogden, of Ohio, followed by a beautiful and practical lecture on Elocution by Rev. Francis T. Russell, of Connecticut.

On Tuesday morning the Institute was formally organized by the appointment of Mr. Conatty, of Kenosha, as President, and Mr. A. Bailey, of Salem, Secretary. The exercises of the day were as follows: A lecture by Prof. Ogden, explaining the course he should pursue in his instructions; a lecture by Prof. Russell on Reading, and one by Prof. Ogden on Grammar. In the afternoon Prof. Russell resumed the subject of Reading, and Prof. Ogden presented the subject of Arithmetic, and the theory and practice of teaching. In the evening Chancellor Barnard addressed a large and attractive audience, at Odd Fellows' Hall, upon the subject of Common Schools. He was followed, in short addresses, by Mr. McMynn, of Racine, and Prof. Russell.

On Wednesday the exercises were, Elocution, by Prof. Russell; Arithmetic, English Grammar, and Teaching, by Prof. Ogden; Mental Arithmetic by Mr. McMynn. At 7 o'clock P. M. a large audience assembled at Odd Fellows' Hall. The roll was called and the member answered to their names by appropriate or witty sentiments. A number of prominent citizens also engaged in this exercise, which passed off to great satisfaction. After roll-call Rev. Dr. Park, of Racine, delivered an interesting address

on the English Language, and Prof. Russell gave some fine readings and recitations, illustrative of the principles of elocution. We doubt whether his rendering of "The Bells," by Poe, could be equalled by any other elocutionist in this country.

On Thursday the exercises were, Arithmetic, English Grammar and Teaching, by Prof. Ogden; remarks on Floral Culture and method of teaching Geography, by Mr. Conatty; and a discussion on the question, "Shall communications of any kind be allowed in school during study hours?" At the close of the session a Committee on Resolutions, consisting of the following persons, was appointed: Miss K. E. Deming, Mr. S. T. Lockwood, Miss M. B. Patterson, and Mr. G. W. Rice. In the evening, A. J. Craig, Esq., of Palmyra, delivered an excellent lecture upon the School Law of Wisconsin. Messrs. Ogden, Conatty, and Rev. Messrs. Gridley, Hanson and Deming followed in short addresses.

On Friday, Prof. Ogden lectured upon Arithmetic, Grammar, and the management of Schools. Miss Deming, on behalf of the Committee on Resolutions, submitted the following, which, after remarks by Messrs. Craig, Ogden, Hanson, and others, were unanimously adopted:

WHEREAS, The achievements of Liberty and Knowledge are the legitimate inheritance of all, and our State, by its noble system of Free Schools, has recognized this right, and whereas the important trust of Teachers has devolved upon us, therefore,

Resolved, That, in the true spirit of this trust, we will, by all honorable means, endeavor to sustain, with credit, the dignity and importance of our calling.

Resolved, That that system of instruction which does not aim at the culture of the heart, and the moulding of the character, is destitute of its most important element.

Resolved, That we regard the labor of Dr. Barnard as heralding a more rapid elevation of the public schools of the State, and that we pledge him our hearty cooperation.

Resolved, That we appreciate the labor of those who have entertained us with instruction and addresses during the session of this Institute, and we hereby tender them our heart-felt thanks.

Resolved, That we tender our thanks to the citizens of Kenosha for their hospitality, and to the School Board for their liberality in making arrangements for the present session of this Institute.

Resolved, That we regard the system of township libraries as a fine feature in the progress of the educational facilities of this State.

Resolved, That we deem the State "Journal of Education" a pioneer in a good cause, and we will give it our support.

Prof. Butler, of the State University, delivered an admirable address, on Friday evening, upon the study of the classics.

Through the kindness of the citizens of Kenosha, a pleasant entertainment was prepared for the members of the Institute, in which all participated, after the lecture. Mirth and music, the "feast of reason and the flow of soul" very appropriately closed the intellectual labors of the week.

On Saturday morning Prof. Butler delivered a most interesting address on "Common-place books." It was original and racy, abounding in anecdotes, humor, deep thought, and valuable suggestions.

Thus closed the first Teachers' Institute held in Kenosha county. All who attended it expressed themselves satisfied and profited. The number of members was large; the interest was well kept up through the week; the instructors and lecturers from abroad were men of the highest ability; the citizens of Kenosha generously opened their doors for the entertainment of strangers, so that everything contributed to make it what a gentleman who was present through the week described it as being, one of the most successful Teachers' Institutes he had the pleasure of attending in Wisconsin.

BELOIT.

The opening lecture was delivered on Monday evening, Nov. 14th, by Prof. Butler, of Madison; subject—"Defence of the study of the Ancient Languages." His lecture was an able and brilliant effort; and his lecture on Tuesday morning, before the Institute, on "Common-place Books," was not less so, sparkling as it did with the wit and good sense of the author.

After the lecture, Mr. Ogden, of Ohio, who had been employed to take charge of the Institute, briefly stated the objects of such meetings, adverting to the mode of conducting them in the State, and to the benefits arising from them.

Prof. Russell, the renowned elocutionist of New-England, then presened the claims of good reading and speaking in his usually happy and masterly manner; after which the Institute adjourned to the College Chapel, the High School room proving too small to accommodate the members present.

In the P. M. Mr. Ogden presented the subject of Arithmetic, written and mental, showing that there is but one science of Arithmetic, but that there are different methods of pursuing it, such as the oral method, the written, and the purely intellectual. Each of the methods has its appropriate uses in educational economy. He closed with a synopsis of Arithmetical notation in all its bearings.

Prof. Russell then resumed his lecture on elocution, basing all true delivery upon the characteristic thoughts and emotions contained in the lectures read, or supposed to have been entertained by the author when writing the piece. This was illustrated by various modes of delivery applied to the same sentence.

The subject of Language Culture and English Grammar was then taken up by Mr. Ogden, in which he showed that all exercises of the schoolroom, and all intercourse, of whatever character, should be brought into service in teaching grammar; that about all the teaching necessary for younger pupils consists in guiding them in the right use of words and modes of expression. This can be done in *all* recitations, of whatever kind. Each one of the sciences, or branches of study, has a specific department of language to cultivate; and it may and *should* be rendered serviceable in refining and enriching the child's language, as well as his thoughts.

On Wednesday the same subjects were resumed by Messrs. Russell and Ogden, with the additional matter of Theory and Practice of Teaching, by the latter, in which he showed that all true theory and practice must be based, 1st, upon our knowledge of human beings, their physical, intellectual, moral, and spiritual natures; 2d, upon our knowledge of the various educational forces, suited to these several capacities at their different stages of growth; and 3d, upon our wisdom and skill in managing these forces, and in modes of application. This formed the basis for the discussion of the various school-room duties, which was resumed on the following day, but was interrupted, for the want of time, and by *other* circumstances.

Prof. Russell's lectures and exercises in elocution were resumed from time to time during the day, and were highly instructive and entertaining.

On Thursday the exercises were much the same, alternating between Elocution, by Prof. Russell, and Grammar and Arithmetic, by Mr. Ogden, except that Mr. Baker occupied an hour in some amusing and instructive arithmetical operations, in which he made some decided hits.

A part of Friday A. M. was occupied by Dr. Chapin in exhibiting some ingenious modes of teaching primary scholars, illustrated by an allusion to, and exposition of methods employed in teaching deaf mutes. The balance of the A. M. occupied by Messrs. Russell and Ogden in representing their respective departments.

Friday P. M. was occupied in general discussion of the various school topics which had claimed the attention of the Institute during the week.

Tuesday evening was occupied by Prof. Russell in a lecture upon the beauty and harmony of sounds, the wonderful properties of the human voice, and the importance and modes of its cultivation. He closed the exercises by some select readings and recitations, which were listened to with profound and breathless attention.

Wednesday evening was occupied by Chancellor Barnard in one of his stirring and powerful appeals to the educated and *educating* public, to rally to the rescue of the common schools, the foundation and feeders of the College and the University. His remarks exhibited the wisdom and experience of a lifetime spent in the study of the various institutions of learning, both in our own country and in Europe. He was listened to with marked attention. After which the audience were again entertained and instructed by Prof. Russell in elocutionary exercises, illustrative of the various styles of reading.

Thursday evening was occupied by Dr. Chapin in an able and practical address, in which he reviewed our educational system, showing the connection between the common schools, colleges and universities. His address will long be remembered by every earnest teacher.

Friday evening was occupied jointly by Mr. Baker, Prof. Havens, of Chicago, and Prof. Russell. Mr. H. made a capital hit on popular education, and was listened to with marked attention. The audience were

again favored with some excellent recitations by Prof. Russell; when, after some miscellaneous business, the Institute adjourned.

BARABOO.

According to previous notice, the Sauk county Teachers' Institute met at the Court-House in Baraboo, Oct. 31st, at 7 o'clock P. M., and was called to order by the President, W. H. Thompson, of Baraboo. Prayer by the Rev. H. Gregg. Chancellor Barnard was then introduced, and gave a very interesting and instructive address upon the educational interests of our State, importance of elevating our common schools, and closed by introducing to the audience Prof. John Ogden, of Cincinnati, Ohio, who was to conduct the exercises of the Institute. He made a few remarks, giving a general outline in which their exercises would be conducted, the deep interest he felt in elevating our schools, not only intellectually, but morally, and showing conclusively to every intelligent mind in the assembly, that not only the parents and teachers, but every person in the community were interested in this important subject. At the close of his remarks the assembly joined in singing Old Hundred. Adjourned till 8½ o'clock Tuesday morning.

On Tuesday morning the Institute was opened by reading scripture and prayer by Rev. Mr. Wyrick. A. T. Longly, of Newport, was appointed Secretary. Prof. Ogden then gave an invitation to all those who wished to become members of this Institute to give in their names. One hundred and twenty-five became members. After some very instructive remarks from the Prof., the subject of Grammar was taken up, and presented before the class in such a manner that all were much interested. One hour was spent in discussing the first principles of Arithmetic. Adjourned one hour and a half.

Afternoon session opened by a song from Mr. Gutterson. Prof. Allen, of Penn., then gave a very interesting address on Spelling, with illustrations. After a recess of fifteen minutes, Mr. W. S. Baker, of Madison occupied the remainder of the afternoon by practical illustrations of the importance of teaching the young, gestures, articulation, etc. Adjourned till 7 o'clock P. M.

Evening session opened by singing and prayer. The roll was then called, and the members answered to their names by giving a sentiment. Address by Prof. Allen, in which were illustrated many points of great interest, in his usual happy and forcible manner. Adjourned.

Wednesday morning. Reading the Scriptures and prayer by Prof. Hascall; the subject of Arithmetic taken up and explained by Prof. Ogden. After a recess of fifteen minutes, Prof. Hascall, of Delton, explained the principles of Orthography. Prof. Ogden continued the exercises by giving a short address on the subject of Human Culture, in which he portrayed, in its true light, the wants of a child, physically, morally, and intellectually. Adjourned.

Wednesday afternoon. Singing; questions upon reading, and remarks upon organizing and the government of schools, by Prof. Ogden.

Evening session opened by singing and prayer. Calling the roll, the members answering by sentiments. Song by Mr. Gutterson. Address by Prof. Ogden on the subject of Family and School Government, in which he showed himself master of this subject. Adjourned till 8½ o'clock Thursday morning.

Thursday morning session opened with singing by the choir, reading the Scriptures and prayer by Rev. Mr. Wyrick. Explanations of a general nature were then given to the class by Prof. Ogden upon the different branches taught in our common schools, and the best method of teaching the same. Adjourned.

Afternoon session. Singing; explanations and exercises upon the black-board; analysis of Grammar, by Prof. Ogden; explanations in Penmanship by Prof. C. E. Clark, of Baraboo. Adjourned till 7 o'clock.

Evening session. Called to order by the President; singing by the Glee Club of Baraboo, under the direction of Henry Cowles; prayer by Rev. H. Gregg; singing by the Glee Club. The roll was then called by the Secretary, nearly all answering by sentiment. Singing. The citizens of Baraboo were called out, and promptly responded each with a sentiment. Prof. Ogden read the following questions:

1st. How can we prohibit profane and vulgar language in our schools?

2d. Is it necessary to prevent all whispering in schools? The best method of doing this.

3d. How can we secure punctuality and regularity of attendance at school?

4th. Is it proper to administer any kind of punishment in school? If so, under what circumstances to be administered, and the best method of doing it?

The first question was then discussed by members of the Institute and others, when, on motion of C. C. Remington, Esq., seconded by F. K. Jenkins, it was resolved, without a dissenting voice, that it was the sense of the meeting, that the true way to prevent the use of profane and vulgar language in our schools is, to discontinue the use of it at our homes and in the streets. Adjourned.

Friday morning. Institute opened by reading the Scripture and prayer by Prof. Ogden. The propriety of organizing a Teachers' Association of Sauk County was presented, when on motion, A. L. Burnham was called to the chair. On motion, voted that a committee of three be appointed to draft a constitution. The following persons were appointed: J. S. Hascall, J. E. Pillsbury, and Mrs. E. Pearson, with instructions to report at the opening of the Institute this P. M.

Prof. C. E. Clark gave a short address on the subject of Penmanship. Prof. Ogden then made some very practical remarks upon reading. Prof. Hascall read two pieces, by invitation; one piece was also read by

Miss A. Stetson. The remaining part of the forenoon was spent in general exercises. Adjourned till half-past one.

Friday afternoon. The President being absent, J. N. Savage was called to the chair. The committee through their chairman, J. S. Hascall, reported a Constitution, which was adopted.

Voted that all members of this Institute become members of the Association.

The following were then elected officers of the Association: Prof. J. E. Pillsbury, of Baraboo, President; J. S. Hascall, Dellton, Mrs. E. Pierson, Baraboo, Miss Mortimer, Baraboo, Vice-Presidents; A. T. Longley, Newport, Secretary; L. T. Linnell, Dellton, Treasurer.

The President, before taking the chair, made some very appropriate remarks, after which the Association adjourned. The remaining part of the afternoon was spent in discussing topics of vital importance to teachers. The following persons were appointed a committee on resolutions: J. S. Hascall, Albert Fox, A. P. Thurston, Miss B. D. Older, Miss L. A. Swain, and Miss C. I. Bosworth. Adjourned.

Evening session. Prayer by Rev. Mr. Wood. Calling the roll and responses, as usual. Prof. Ogden introduced the third question, with some very interesting remarks upon the importance of every child's being present the first day of school, the regular attendance through the term, and appealed to parents for their cooperation. Teachers and others joined in the discussion. The committee on resolutions reported the following, which were adopted:

Resolved, That we tender our thanks to Dr. Barnard, of the State University, Prof. Allen, Prof. Hascall, Mr. Clark, and others, for the kindness and promptness with which they have labored for our intellectual culture.

Resolved, That we feel ourselves under especial obligation to Prof. J. Ogden, of Ohio, for his faithful and untiring efforts in imparting to us instruction, and in explaining and simplifying those questions upon which we, as teachers, have found it so difficult to decide.

Resolved, That we who have received instruction at this Institute will unite our earnest efforts for the elevation of the standard of education, until such a system shall be established as shall raise man to his proper position as a rational, intelligent and responsible being.

Resolved, That we, the members of the Sauk County Teachers' Association, return our sincere thanks to the people of Baraboo for their kindness and hospitality in opening the doors of their public buildings and private residences for the accommodation and entertainment of the teachers assembled at this Institute.

Resolved, That we feel especially grateful to the committee of arragements for their prompt efforts in securing the comfort and convenience of members from abrcad.

Resolved, That we express our thanks to the choir, and also the Glee Club of Baraboo, for their successful efforts in contributing by the sweet voice of social song to our entertainment.

Voted that the proceedings of this Institute be published in the Baraboo Republic. After singing the Doxology, and the Benediction by Rev. Mr. Wood, the Institute adjourned *sine die*.

GALESVILLE.

On Monday, October 24th, 1859, the Institute was called to order by Prof. Fallows, and, on motion, G. T. Freeman was chosen President for

the session, and Samuel Fallows, Secretary. Prof. Allen, of Penn., addressed the Institute on the subject of Teachers' Institutes. Prof. John Ogden, of Ohio, spoke on the subject of Education. Remarks were also made by Mr. Gray and Prof. Mason. The Institute then adjourned till 9 o'clock Tuesday morning.

Tuesday morning the Institute was called to order by S. Fallows; reading of Scripture and prayer by Rev. Mr. Ingalls. Prof. Allen addressed the Institute on the subject of Arithmetic. Prof. Ogden spoke on the subject of Grammar. The exercises were interspersed with singing. The Institute adjourned until 2 o'clock P. M.

Afternoon session. Roll called. Prof. Allen spoke on the subject of Geography, and Vocal sounds. Prof. Ogden spoke on the Science of Education and Vocal Culture. Adjourned till 7 o'clock.

The evening session was called to order by the President; roll called. Prof. Mason addressed the audience upon the subject of Education. Remarks were then made by Prof. Cook, Fallows, and Allen, and by Rev. Mr. Ingalls. Adjourned until 9 o'clock Wednesday morning.

On Wednesday morning the Institute was called to order by Mr. Fallows, and the roll called. Prof. Allen spoke on the subject of Geography and the best methods of teaching it. A short discussion was held concerning Mental Arithmetic. Adjourned until 3 oclock P. M.

In the afternoon Prof. Ogden spoke on the best means of securing the attention of scholars. Prof. Allen spoke on the subject of Primary Schools. Adjourned until 7½ o'clock.

In the evening the Institute was called to order by Mr. Freeman. The roll was called and the members responded by sentiments. Mr. Craig addressed the meeting on a system of Public Instruction suited to our State. Prof. Allen made some concluding remarks. The following resolutions were then adopted by a rising vote:

Resolved, That Profs. J. Ogden and C. H. Allen are entitled our highest commendations for their suggestive hints upon teachers' duties, and upon the topics that demand the teachers' attention in the school-room.

Resolved, That we are especially grateful to Prof. Ogden for his faithful assertion of the great principles that underlie all education—the development of the entire man, physically, socially, intellectually, morally and spiritually.

Resolved, That the citizens of Galesville are entitled to and do receive our warmest thanks for the cordial entertainment tendered us during the session of the Institute.

The Institute adjourned by singing the Doxology, and with Benediction from Rev. Mr. Ingalls.

On Friday evening Chancellor Barnard addressed the citizens of Galesville on General Education.

MILTON.

The Institute was organized on Monday evening, Nov. 7, by a lecture from Dr. Barnard, together with some remarks by Prof. Baker on the object of Teachers' Institutes.

On Tuesday morning, after the usual opening exercises, a few additional remarks were made upon the "Objects of a Teachers Institute." The remainder of the forenoon was occupied by William S. Baker in exercises upon Grammar and Arithmetic.

In the afternoon session the subject of Grammar was again resumed by Mr. Baker, who was followed by C. H. Allen, of Pa., upon the subject of Primary Geography. The session closed with a general discussion upon "The best means of securing punctuality in schools."

The evening exercises were opened by prayer, calling the roll, and responses by sentiments, followed by a lecture from Pres. Chapin, of Beloit, upon "The relations of language to education," which was an excellent production. The address was followed by remarks upon the same subject by Messrs. Whitford, Baker and Craig.

During Wednesday, Reading and Arithmetic were discussed by Mr. Baker, and Geography, Spelling, Composition and Declamation, by Profs. Whitford and Allen. The session closed with a discussion upon the following:—"Resolved that corporal punishment should be banished from the school-room."

Evening session; calling of roll and responses, followed by an able and well delivered address by A. J. Craig, upon "A system of Public Instruction"; also, remarks upon the same by Messrs. Gray, Whitford and Allen. By way of variety, E. B. Gray, of Whitewater, being requested, recited Burns' famous "Tam O'Shanter," much to the interest and delight of the audience.

On Thursday morning, by vote, the following message was despatched to Kenosha:—

From the two hundred and twenty Teachers in the Milton Institute to the Institute at Kenosha, greeting:—Hail! We greet you as co-workers in a noble Cause!

In about an hour the following reply was received, with enthusiastic applause:—

To the Teachers' Institute at Milton:—One hundred Teachers a Kenosha send to our Brothers and Sisters a greeting as warm as the lightning will bear. God prosper our noble cause and bless all its worthy agents and instrumentalities.

The exercises of the day consisted of discussions upon the best methods of teaching the fundamental rules of Arithmetic, by Profs. Whitford and Allen; also upon Physiology and Spelling, by Prof. Allen. Sub-lectures were delivered by Prof. Rockwood, of Milton, upon "Mental Arithmetic," by H. L. Sherman, of Whitewater, upon "Moral Culture," and J. R. Purdy, of Fort Atkinson, upon "School Government."

Essays were read by Miss E. C. Wyman, of Stoughton, upon "Perseverance," and by Miss Nettie Roberts, of Whitewater, upon "The health and habits of teachers."

At 3 o'clock P. M, Prof, Butler, of Madison, having arrived, he was introduced, and regaled the Institute with a lecture upon "The keeping of a Common-place Book," which, in point of brilliancy, was *the*

lecture of the season. It may only be compared to a revolving globe of diamonds beneath an artificial light, each revolution of which gives a more dazzling picture, and a more attractive sparkle.

Evening session. Calling of roll as usual. Lecture by Prof. Butler upon "The necessity of mental culture;" 1st, in a general sense, but mainly as applied to the teacher. By previous arrangement, the lecture was followed by a "Social," in which everybody and their cousins joined, and which all seemed to enjoy to the fullest extent.

There being much to be disposed of during Friday, the last day of the session, the following programme was announced for the day: 1st, Reading, by Prof. Francis Russell, of Mass.; 2d, Grammar, by Prof. Baker; 3d, Arithmetic, by Prof. Allen; 4th, general exercises and answering of questions, among which Prof. Allen took up the following subjects: Least Common Multiple; the Greatest Common Divisor; and the reason for inverting the divisor in division of fractions.

Fifteen minutes was taken up by Mr. Baker with a class of children, which he had formed, in some reading exercises, and by Prof. Beckley, of Milton, with the same class, upon Perspective Drawing, several of which he called to the board, where they did credit to themselves and teacher by drawing readily such objects as he designated, although they had received only five or six lessons. During his remarks upon Reading, which were of a very interesting and profitable character, Prof. Russell recited "The Raven," "The Falls of Lodore," and several other pieces, with masterly effect, adding greatly to the interest of the exercises. Some general remarks by Profs. Allen and Baker, and the adoption of the following resolutions, closed the session:—

Resolved, That we, the teachers associated in this Institute, tender our most sincere thanks to Chancellor Barnard, Prof. Allen, W. S. Baker, Esq., Pres. Chapin, Hon. A. J. Craig Prof. F. Russell, Prof. W. C. Whitford, and Prof. Butler, who have so generously given their time and talents to promote the glorious cause of education in our midst.

Resolved, That our earnest thanks are due to the Principal and Professors of the Milon Academy for their welcome and entertainment as hosts, and their efforts as individuals to make our meeting interesting and profitable.

Resolved, That the choir, which has enlivened and inspired the daily exercises of the Institute by their sweet songs, are entitled to a cozy niche in our memories.

Resolved, That two hundred and twenty teachers rise up with one voice and cry "Long live the citizens of Milton!" and may their well loaded tables and bright hearth-stones never b invaded by a less grateful company.

The following was then offered in behalf of the students of Milton Academy.

esolved, That as members of the Milton Academy we feel that the present Teachers' Institute has been a source of the greatest benefit, as well as pleasure and interest, to us, both as teachers and taught, and that to the generous self-sacrifice of time and effort on the part of the managers, are we especially indebted for fresh aids, and incentives to more vigorous effort in the cause of education, and a higher standard of excellence in the profession of the educator.

MADISON.

The opening session of the Teachers' Institute for this city was held at the Assembly Chamber on Monday evening, November 21st. Notwithstanding the very unfavorable weather, the attendance was quite large. This Institute was the last of the series appointed by Chancellor Barnard, under the auspices of the Board of Regents of Normal Schools.

The speaking began with appropriate remarks from his Excellency, Governor Randall. He alluded to the munificent grants made by the General Government in aid of popular education, and pointed out to the teachers the important duties which devolved upon them as agents for the State in securing the ends of this bounty.

Chancellor Barnard then came forward and remarked that in the course of the proceedings of the present series of Institutes, over fifteen hundred teachers, and persons proposing to teach, will have been assembled in sixteen different places, scattered widely apart over the State, and will have availed themselves of the class instruction and lectures of experienced teachers, and have been hospitably entertained for a week by the citizens of these various localities. At least five hundred families had been reached, and schools and teaching made subjects of conversation for that period of time, and at least ten thousand people had been in attendance on the evening lectures, which had been given by many of the most eminent teachers and professors of the several colleges and high schools of the State. At least twelve hundred schools for the coming winter, with their forty thousand children, will be improved by the better qualifications of teachers, and the deeper interest of parents and school officers secured by this new and effective agency of popular education. These statistics show the two-fold character of the Institute—reaching at once the teacher and community, the school and the homes, thus making the work both broader and more permanent. Promising to pursue this topic at a later stage of the proceedings, the Chancellor closed by calling upon any of the Normal Regents, many of whom were present, to make such remarks as they chose.

None of those gentlemen responding to this invitation, Prof. Butler, of the State University, was announced, and delivered his very interesting address on common-place books, as helps to retain, recall, and increase our knowledge.

Nov. 22—The Institute met according to the notice given last evening. The first half hour was spent in opening exercises and enrollment of members, after which a brief outline of the objects of the Institute was given by Mr. Ogden. Mr. C. H. Allen followed upon the subject of Arithmetic, embracing Notation and Numeration. The last hour and a half were spent in the presentation and discussion of several points, by Mr. Ogden, as preparatory to a course of teaching.

The opening address for the afternoon consisted of remarks made by Prof. Allen on the best method of teaching Geography. At 2:45 the sub-

ject of English Grammar was taken up by Prof. Ogden, and discussed in an interesting manner. The lecture at 4 o'clock was by Prof. Butler, on the subject of "The Teachers Incentives to Mental Culture." Dr. D. B. Reid, late of Edinburgh, Scotland, and now Professor in the University, delivered the evening lecture, on "The benefits arising from cultivating Physical Science." Prof. Russell, who had been expected in the morning, was then introduced to the audience, and made a few introductory remarks on elocution, illustrated by some of his inimitable recitations.

The exercises of Wednesday morning were opened by singing and prayer. Prof. Russell next occupied the Institute with elementary instruction in elocution. After singing by the choir, Prof. Allen gave some instruction in the best methods of teaching Mental Arithmetic, illustrating various principles by forming a class and assigning them the performance of different examples. Prof. Ogden then gave some hints on the organization and management of schools.

After singing, the first address in the afternoon was delivered by Prof. Pickarts, on the art of teaching. Prof. Whitford, Principal of the Milton Academy, occupied the next fifteen minutes in making an earnest appeal to the teachers for greater enthusiasm in their schools.

The remainder of the afternoon was spent in singing, the answering of various questions by Prof. Allen, and elocutionary exercises by Prof. Russell, till 4 o'clock, when Dr. Carr was announced, and proceeded to address the teachers on "What we Breathe."

Prof. Bean, of Waukesha, delivered the evening lecture. He invited the attention of the audience to the subject of Language; not the ancient languages, nor the modern languages, but to those principles which underlie the forms of speech in every tongue.

The regular exercises were suspended on Thursday, it being Thanksgiving. The children of the city assembled at 2 o'clock, and listened to Scriptural readings by Prof. Russell, and remarks by W. S. Baker.

On Thursday evening the Institute repaired to the University, South Building, where they were received by the Resident Faculty, according to previous invitation, and cordially welcomed to the "sociable" of the occasion. During the evening they were regaled by experiments in Chemistry and Philosophy, by Drs. Carr and Sterling, and last, but not least, by a well spread board, to which everybody did ample justice.

The address in the evening was listened to by a large audience, Chancellor Barnard doing justice both to himself and his subject. The music by the German choir, and also by Mrs. Reid, was excellent, as were the recitations by Prof. Russell.

The morning session on Friday opened, after singing and prayer, with further instruction in elocution by Prof. Russell, directed chiefly to the children of one of the ward schools. Accompanying these exercises, Mr. Baker gave them a short drill in making gestures with the arms, upward, downward, and obliquely, forward, backward, and to the right and left.

Chancellor Barnard announced that the pith of the proceedings of the various Institutes which had been held in this State would be published in a single volume, to be got out by subscription. In Massachusetts and Connecticut, the proceedings of each Institute were published separately, but he thought the plan proposed would work better here.

Mr. Allen spent the remainder of the forenoon in instruction in the best methods of teaching Orthography, and in answering questions which had been propounded by the teachers at various times during the previous days of the Institute.

In the afternoon, after singing, Mr. Beckley gave instructions in Perspective Drawing, illustrated upon the blackboard. Some of the pupils of the ward schools were present, and, after attending to the drawing, sang several pieces under the direction of Mr. Jones, teacher of vocal music in the city schools.

At the close of the recess, Mr. Tullis, Principal of the University Commercial School, gave a short lecture on Penmanship. The next quarter hour was occupied by Prof. Pickard, of the University, in a very satisfactory discussion of auxiliary verbs.

The lecture of the afternoon and evening was by Dr. Reid, upon Ventilation, illustrated by diagrams and numerous experiments.

A vote of thanks was passed, tendering to the "citizens of Madison the earnest thanks of the teachers from abroad, in attendance upon the Institute, for their kindness in furnishing us homes during the week, and for their efforts to render our stay among them pleasant as well as profitable."

At a later stage of the proceedings, Prof. Conover, Principal of the High School, replied to these resolutions in a very neat and happy speech.

Further resolutions were passed, thanking Mr. Main for the use of his piano, the Faculty of the University for their entertainment of the teachers on Thursday, and the choir of the High School for the excellent music which they had furnished during the session of the Institute, under the direction of Mr. Lovewell.

Thus closed the last regular Institute of the series. About one hundred and twenty-five teachers were in attendance.

Interesting Institutes of from two to four days continuance were also held at La Crosse, Waukesha, and Milwaukee, the exercises of which were of the same general nature as those already described. As these were not of the series regularly appointed by Dr. Barnard, pursuant to responses to the circular issued, and as we wish to close the account of the proceedings with this number of the Journal, we give no extended notice of them.

The number in attendance at the various Institutes, whose names have been recorded as members, is as follows: Appleton, 75; Baraboo, 125; Beloit, 150; Elkhorn, 175; Eau Claire, 31; Galesville, 40; Kenosha, 100; Milton, 225; Mineral Point, 67; Madison, 120; Richland Center, 60; River Falls, 70; Sheboygan, 65; Waupun, 120. There were at La Crosse about 35; at Waukesha, about 100; and at Milwaukee, about 100.

Superintendent's Department.

OPINIONS, &C., FROM THE OFFICE OF THE STATE SUPERINTENDENT.

(*Continued from the December Number.*)

APPOINTMENTS, ETC.

Q. In case a District Treasurer forfeits his office by not filing his bond, when does the vacancy begin which must exist ten days before the Town Superintendent has authority to appoint?

A. The School Law (Sec. 16) provides that officers may hold office not to exceed ten days beyond the term of their office. The evident object of this provision is to cover the ten days allowed by Section 21 to the District Treasurer for making and filing his bond, and by Section 16 to other officers for signifying their acceptance. Therefore the vacancy in any office will not *commence* until the expiration of ten days from the annual meeting, for previous to this the old officers hold over. The vacancy will not then begin until ten days after the annual meeting, and for the next succeeding ten days, that is, until the twenty-first day after the annual meeting the Board can appoint; after this the right of appointment rests entirely with the Town Superintendent. The law being thus explicit, it necessarily follows that an appointment made by the Town Superintendent prior to the twenty-first day after the annual meeting, (in the case presented above, or in other cases of vacancy prior to the eleventh day after the vacancy occurs) or any appointment by the District Board after this date, will be void.

Q. In case one member of the Board shall resign, and his resignation shall be accepted, and prior to the filling of the vacancy by the Board, one of the remaining members of the Board shall remove from the district, can the remaining member fill the vacancies within the ten days allowed by law?

A. The general principle of law is that where a joint authority is given to a Board consisting of three or more persons, it must be construed as being vested in a majority of them, and not the entire authority in each. So that in the case supposed above, where the Board is reduced to less than a majority, the right of appointing ceases, and in such cases, if the Town Superintendent should immediately appoint, even before the expiration of the ten days, such appointment would be valid, as in this case there is no other appointing power that can be exercised prior to his, and rather than suffer an interregnum for ten days, the Town Superintendent may stretch his authority—if, indeed, it be any stretch—since by virtue of his office, he has the supervision of all districts in his township.

Q. In case officers are appointed, how long will they hold their offices?

A. Only until the next succeeding annual meeting, when a person must be

elected to fill the office for the remainder of the term, and not for three years. This point is not authoritatively settled in the School Law, but the general principle above given governs generally in our laws, except in cases specially set forth —the law being careful not to take the elective franchise from the people for a longer period than is absolutely necessary; and when, upon a seeming necessity, the authority of appointing officers is conferred upon other officers, their authority, being foreign to the spirit of our laws, must lapse as soon as possible; and the only reason of its ever being conferred being the inconvenience and expense of attending frequent elections. When this is done away, as at the annual meeting, the people resume their right of election. In case of most town officers, it is optional with the people whether they will permit the appointee to serve, or call a new election. We conclude, therefore, that, although there is no express statute regulating this matter, the spirit of the law will sustain the views above advanced.

Q. In case a Treasurer elected at the annual meeting fails to qualify within ten days, and his successor is appointed, who refuses to serve, when the elected Treasurer is appointed, will he hold under his election or under his appointment?

A. Under his appointment until the next annual meeting only. For, having forfeited his office by not qualifying, he cannot avoid this forfeiture by any subsequent qualification, or appointment, but he becomes, to all intents and purposes, as though he had not been elected.

Q. In case the annual meeting passes unnoticed, and an office thereby becomes vacant, can such vacancy be filled by appointment?

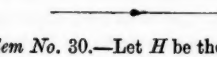
A. In such a case Section 13, Chapter 23, R. S, 1858, (School Law,) provides that the Board may authorize a special meeting, to elect officers, or, in case of their neglect or failure, that the Town Superintendent may call such special meeting. This section must be taken as qualifying section 40, which gives the Board or Superintendent power to to fill any vacancy that may occur, and as excepting this particular case, so that vacancies occuring in this manner are not to be filled by appointment, but by an election conducted as prescribed in sections 12 and 29.

S. H. CARPENTER,
Assistant State Superintendant.

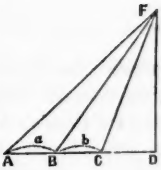
MADISON, 12th Dec., 1859.

Mathematical Department.

Solution of Problem No. 30.—Let H be the starting point, C be the point at which A turns back and $x=B$'s progress. Suppose KC=the distance B travels in 9 days, which$=9x$. The whole distance A travels$=18\times22\frac{1}{2}=405$ miles, and $HD=22\frac{1}{2}x$; but as A travels the distance of KC three times, $405-18x=HD$; then $405-18x=22\frac{1}{2}x$, and $x=10$.



E. H. JONES.



Solution of Problem No. 32.—The angle FDA, by the conditions of the problem, is a right angle, and as the angle FBD is the complement of the angle FAD, the angle AFD is also the complement of the angle FAD, and the angles AFD and FBD are equal, and the two remaining angles of the triangles, AFD and BFD, are equal, and the two triangles are equiangular. Again, let the angle $A=z$, then, by the conditions of the problem, angle $FCD=2z$, but the exterior angle FCD=the sum of the angles AFC and FAC. Subtracting the angle A from the angle FCD we find the angle $AFC=z$. Then the triangle ACF is isosceles, the side AC=the side CF. Let $CD=y$, $FD=x$, and by the conditions of the problem $AB=a$, $BC=b$, $AD=a+b+y$; and from the isosceles triangle we have $a+b=CF$. From the two equiangular triangles we have the following proportion: $AD : FD :: FD : BD$, or $AD.BD=FD^2$. Substituting for AD, BD, and FD their values, and we have $(a+b+y)(y+b)=x^2(1)$. From the right angle triangle FCD we have $(a+b)^2-y^2=x^2(2)$. Eliminating x, and reducing, we find $y=\frac{a}{2}$. Substituting for y in *e. g.* (2) and we find $x=\sqrt{\frac{3}{4}a^2+2ab+b^2}$, and the area of the triangle $FCD=\frac{a}{4}\sqrt{\frac{3}{4}a^2+2ab+b^2}$, and the area of BFD $\frac{b}{2}+\frac{a}{4}\sqrt{\frac{3}{4}a^2+2ab+b^2}$, and $AFD=\frac{a+b}{2}+\frac{a}{4}\sqrt{\frac{3}{4}a^2+2ab+b^2}$.

E. H. JONES.

Sotution of Problem No. 30.—It is evident that the distance A traveled in $22\frac{1}{2}$ days=the distance B traveled in $22\frac{1}{2}$ days+twice the distance B traveled in 9 days, because, after 9 days A traveled back as far as B traveled in 9 days, and then again pursued his journey and overtook B $22\frac{1}{2}$ days from the time they first set out. We learn that A traveled 18 miles each day, hence 18 miles $\times 22\frac{1}{2}$=405 miles=the distance A traveled in $22\frac{1}{2}$ days=the distance B traveled in $22\frac{1}{2}$ days+the distance B traveled in 18 days. Therefore, $405\div(22\frac{1}{2}+18)=10$, the number of miles B traveled per day.

L. CAMPBELL.

General Solution of Problem No. 19.—The space enclosed by the circumferences of three equal circles which touch each other externally is always equal to the area of an equilateral triangle formed by lines joining the centers of the three circles, minus half the area of one of the circles.

Hence, $A=\sqrt{3}\,R^2-\frac{3.141592}{2}R^2$, or $R=\sqrt{A\div .161255}$, in which R represents the radius of each circle, and A the area of the space inclosed by the three circumferences. The side of an equilateral triangle described about the three circles is equal to the diameter of the circles, plus twice the perpendicular of a triangle formed by lines joining their centres. Hence, $S=2R+2\sqrt{3}\,R=5.4641R$, in which S represents the side of an equilateral triangle described about the three circles. When the radius of a circle=1, the side of its inscribed equilateral triangle will be $\sqrt{3}$. Hence, $\sqrt{3}:1::S:\frac{1}{2}D$. Therefore, $D=\frac{2S}{\sqrt{3}}=1.1547S$, in which D represents the diameter of a circle circumscribing the triangle. In problem 19 A=160 sq. rods. Hence, $R=\sqrt{160\div .161255}=31.499+$ rods. $S=31.499\times 5.4641=172.1136+$ rods, and $D=172.1136\times 1.1547=198.7397$ rods.

L. CAMPBELL.

LAWRENCE UNIVERSITY.

EXAMINATION POINTS IN THE OUTLINES OF ELEMENTARY ALGEBRA.

The following will be interesting to teachers in our schools, and, perhaps, useful in their own class drilling:—

SECTION I.—(1.) *Axioms.* State and illustrate all the axioms of common use in algebraic reasoning.

(2.) *Symbols.* Show by examples the use of each of the following signs: equality, inequality; addition, subtraction, multiplication, division; vinculum, or parenthesis. If a sign has several forms, give each form.

(3. *Equation.* Define equation, write an example, and show what is meant by members. Define and illustrate transposition, clearing of denominators and clearing of coefficients, and give in full the reasoning applicable to each operation.

(4.) *Miscellaneous.* Define each of the following, and write examples: term, monomial, polynomial; additive number, subtractive number; numerical value of a polynomial; reduction of similar terms. Give the reasoning applicable to the latter operation.

(5.) *Addition.* Define algebraic sum, and state the distinction between it and arithmetical sum. Get the algebraic sums of several quantities,

numerical and literal, additive and subtractive; and in each case explain the operation.

(6.) *Subtraction.* Define algebraic difference, and explain the distinction between it and arithmetical difference. Get algebraic differences between several quantities, numerical and literal, additive and subtractive, and in each case explain the operation.

(7.) *Multiplication.* Define algebraic product, and give the distinction between it and arithmetical product. Form products of monomials, and explain fully the signs and coefficients and the literal part, in each result. State and prove the result when one factor is zero. Prove that the order of arrangement of the factors has no influence upon the value of the product. Extend the above principles to multiplication of polynomial by monomial, binomial by binomial, binomial by residual, and residual by residual.

(8.) *Division.* Define algebraic quotient, and give the distinction between it and arithmetical quotient. Divide a monomial by a monomial, and show clearly how you get the sign, the coefficient, and the literal part in the quotient. Also, divine a polynomial by a monomial, and explain as above. Show what is the effect, upon quotient, of increasing or diminishing divisor; of making dividend n times greater,—n times less; of making divisor n times greater,—n times less; of making both dividend and divisor n times greater,—n times less.

(9.) *Use of Vinculum.* Prove each of the following principles relating to use of vinculum, or parenthesis, and illustrate each by an example: 1st, Parenthesis preceeded by plus may be omitted without affecting the inclosed expression. 2d, Parenthesis preceded by minus may be omitted, provided we change sign of each inclosed term. 3d, Any quantity may be inclosed within a parenthesis and preceded by minus, provided the sign of each inclosed term be changed. The above principles are of great use in giving different equivalent forms to polynomials, in addition, and in subtraction. Write an example of each application.

(10.) *Powers.* Define power of a number, and give examples. Show how to indicate a power by use of sign of multiplication, and show how this expression may be shortened by use of an exponent. Explain clearly the precise meaning of this exponent.

Different powers of a same number are to be multiplied together; show how we may at once form the the exponent of the required product. A power of a number is also to be divided by a less power of the same number; show how we may at once form the exponent of the required quotient.

To be Continued.

Editorial Miscellany.

THE account of the proceedings of the series of Institutes held under the call and direction of Dr. Barnard, is finished in this number, and we shall hereafter give our usual variety of matter. The importance of the movement is our apology for occupying so much space with the proceedings, and our contributors must have patience, as their articles will appear in due time.

THE following summary of facts, collected in reference to the teachers in attendance upon the Institutes, will be of interest to all: Whole number in attendance whose names were recorded, 1425; No. who filled blanks, 992; No less than 16 years of age, 35; No, between 16 and twenty, 360; No. between 20 and 25, 377; No. between 25 and 30, 121; more than 30, 85 Born in New-York, 439; Wisconsin, 89; Vermont, 76; Ohio, 65; Pennsylvania, 44; Massachusetts, 41; Maine, 40; England, 33; New-Hampshire, 25; Illinois, 21; Connecticut, 16; Indiana, 13; Canada, 12; Michigan, 10, New-Brunswick, 6; Wales, Nova Scotia and Scotland, each 5; New-Jersey, Ireland, and Norway, each 4; Mississippi, Germany, Siam, Prussia, Missouri, District of Columbia, and Spain, each 1—964. Students of Universities, 98; Colleges, 64; Seminaries, 126; Academies, 343; High Schools, 203—834. Have taught less than 1 year, males, 105, females, 159 —264; from 1 to 2 years, males, 79, females, 102—181; from 2 to 5 years, males 89, females, 83—172; from 5 to 10 years, males 27, females, 23—50; more than 10 years, males 30, females, 24—54. Have taught for less than $10 per month last year, males, 1, females, 88; from $10 to $15, males, 10, females, 138; from $15 to $25, males, 153, females, 106; from $25 to $35, males, 96, females, 30; more than $35, males, 19, females, 0. Who intend to make teaching a profession, males, 129, females, 170; have attended Normal Schools, 16; attended Normal Classes, 204; attended Institutes previously, 195; who own educational works, 213; who own Teachers' Library, 18; who have read one educational work, 206; more than one, 220; who subscribe for Journals of Education, 279.

FOND DU LAC.—E. C. Johnson, late of the High School of this city, has accepted a Professorship in Chicago University, and entered upon the discharge of his duties. Mr. J. has done a good work at Fond du Lac, and has left behind him warm friends, both in the schoolroom and the community. A faithful and efficient teacher, and one of the Board of Editors of this Journal, we are sorry to part with him, but give him our best wishes for his success in his new position. We have his promise that he will continue to take an interest in the Journal, and furnish matter for its columns. He is succeeded by Mr. S. H. Peabody, formerly of Philadelphia Polytechnic College, and late of Eau Claire, in this State, who has the reputation of a finished scholar, and successful teacher.